GAMING DEVICE HAVING A THREE DIMENSIONAL DISPLAY DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is related to the following commonly-owned patent applications: "TRAJECTORY-BASED 3-D GAMES OF CHANCE FOR VIDEO GAMING MACHINES," Ser. No. 10/187,343; "TRAJECTORY-BASED 3-D GAMES OF CHANCE FOR VIDEO GAMING MACHINES," Serial No. PCT/US03/18028; "VIRTUAL CAMERAS AND 3-D GAMING ENVIRONMENT IN A GAMING MACHINE," Ser. No. 09/927,901, now U.S. Pat. No. 6,887,157; "3D REELS AND 3D WHEELS IN A GAMING MACHINE," Ser. No. 10/674,884; "3D REELS AND 3D WHEELS IN A GAMING MACHINE," Serial No. PCT/US03/31138; "3D TEXT IN A GAMING MACHINE," Ser. No. 10/676,719; "GAME INTERACTION IN 3-D GAMING ENVIRONMENTS", Ser. No. 10/803,233; "VIRTUAL CAMERAS AND 3-D GAMING ENVIRONMENTS IN A GAMING MACHINE", Ser. No. 11/112,076; "METHODS AND DEVICES FOR DISPLAYING MULTIPLE GAME ELEMENTS", Ser. No. 11/481,666; "VIRTUAL CAMERAS AND 3-D GAMING ENVIRONMENTS IN A GAMING MACHINE", Ser. No. 11/829,807; "3D TEXT IN A GAMING MACHINE," Serial No. PCT/US03/31158; "GAMING DEVICE HAVING A THREE DIMENSIONAL DISPLAY DEVICE," Ser. No. 11/167,655; "MULTIPLE-STATE DISPLAY FOR A GAMING APPARATUS," Ser. No. 10/755,598; "GAMING MACHINE WITH LAYERED DISPLAYS," Ser. No. 11/514,808; and "MULTIPLE-STATE DISPLAY FOR A GAMING APPARATUS," Serial No. PCT/US05/00597; "GAMING MACHINE WITH LAYERED DISPLAYS", Ser. No. 11/829,849; "GAMING MACHINE WITH LAYERED DISPLAYS", Ser. No. 11/829,852; and "GAMING MACHINES WITH LAYERED DISPLAYS", Ser. No. 11/829,853; "METHOD AND APPARATUS FOR USING A LIGHT VALVE TO REDUCE THE VISIBILITY OF AN OBJECT WITHIN A GAMING APPARATUS". Ser. No. 11/938,086; "MULTIPLE-STATE DISPLAY FOR A GAMING APPARATUS", Ser. No. 11/829,917: "PRESENTATION OF WHEELS ON GAMING MACHINES HAVING MULTI-LAYER DISPLAYS". Ser. No. 11/938,151: "SEPARABLE BACKLIGHTING SYSTEM". Ser. No. 11/877,611; and "SINGLE PLANE SPANNING MODE ACROSS INDEPENDENTLY DRIVEN DISPLAYS". Ser. No. 11/938,632.

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BACKGROUND OF THE INVENTION

The present invention relates in general to a gaming device, and more particularly to a gaming device having a three dimensional display device. Contemporary gaming devices such as slot machines, video poker machines, video blackjack machines and video keno machines, include display devices which generate two-dimensional images such as visual representations of symbols, characters and other game-related images which appear in primary games, secondary games, help screens, attract modes and other displays of the gaming devices.

Certain known gaming devices generate three dimensional images using traditional perceived-type or virtual three dimensional display devices. The virtual three dimensional images involve shading and highlighting techniques as well as perspective techniques for selectively positioning different parts of images to create the perception of depth. These virtual three dimensional image creating techniques cause the human eye to perceive a depth in the image when in fact there is no real depth because the images are physically displayed in a single plane on a single display screen.

Certain known gaming devices have attempted to generate more realistic appearing virtual three dimensional representations by using beam splitters and parallel mirrors. Some of the disadvantages of such techniques are the relatively large space in the gaming device required to house beam splitters and mirrors, and the relatively small field of view available to a player. Accordingly, there is a need for a gaming device which generates three dimensional images which are formed in three actual dimensions and which provides three dimensional images in a suitably sized gaming device.

In addition, though most gaming devices include one display device, some include two display devices such as an upper display and a lower display or side by side displays to provide two different displays to a player. The gaming devices use these multiple display devices to provide different information to the player or difference games to the player. Use of the upper and lower or side by side display devices may for certain players be inconvenient or distracting because the multiple screens require a player to change his or her line of sight from one display device to another. Accordingly, there is need for a gaming devices which includes one display device which enables a player to simultaneously view different images on different screens by looking at and through only one display screen.

SUMMARY OF THE INVENTION

The present invention overcomes the above shortcomings by providing a gaming device which has a display device which includes a plurality of aligned display surfaces, members or screens which produce three dimensional images. One embodiment of the display device of the present invention includes a plurality of such as two co-acting aligned display screens which form a single display device. In one embodiment, one or more of the display surfaces, members or screens have at least one viewing surface which is or has the capacity to be see-through and preferably is transparent. The display surfaces, members or screens are primarily referred to herein as display screens. In one embodiment, the display screens are separated by a predetermined distance to facilitate the creation of images having various depths. Different parts of the three dimensional image are displayed simultaneously on the different display screens. The three dimensional image has actual x, y and z coordinates or dimensions. The z-dimension is the depth or distance which separates the display screens. This display device also is adapted to simultaneously display different images on different screens to provide information to the player in the player's line of site.

More specifically, each display screen provides a viewing surface or face, or any suitable medium for displaying one or more images (partial or whole) to a player. Each display screen is adapted to display portions of the image, images or different images to create the three-dimensional images. Such